T0920T* 62E8900T

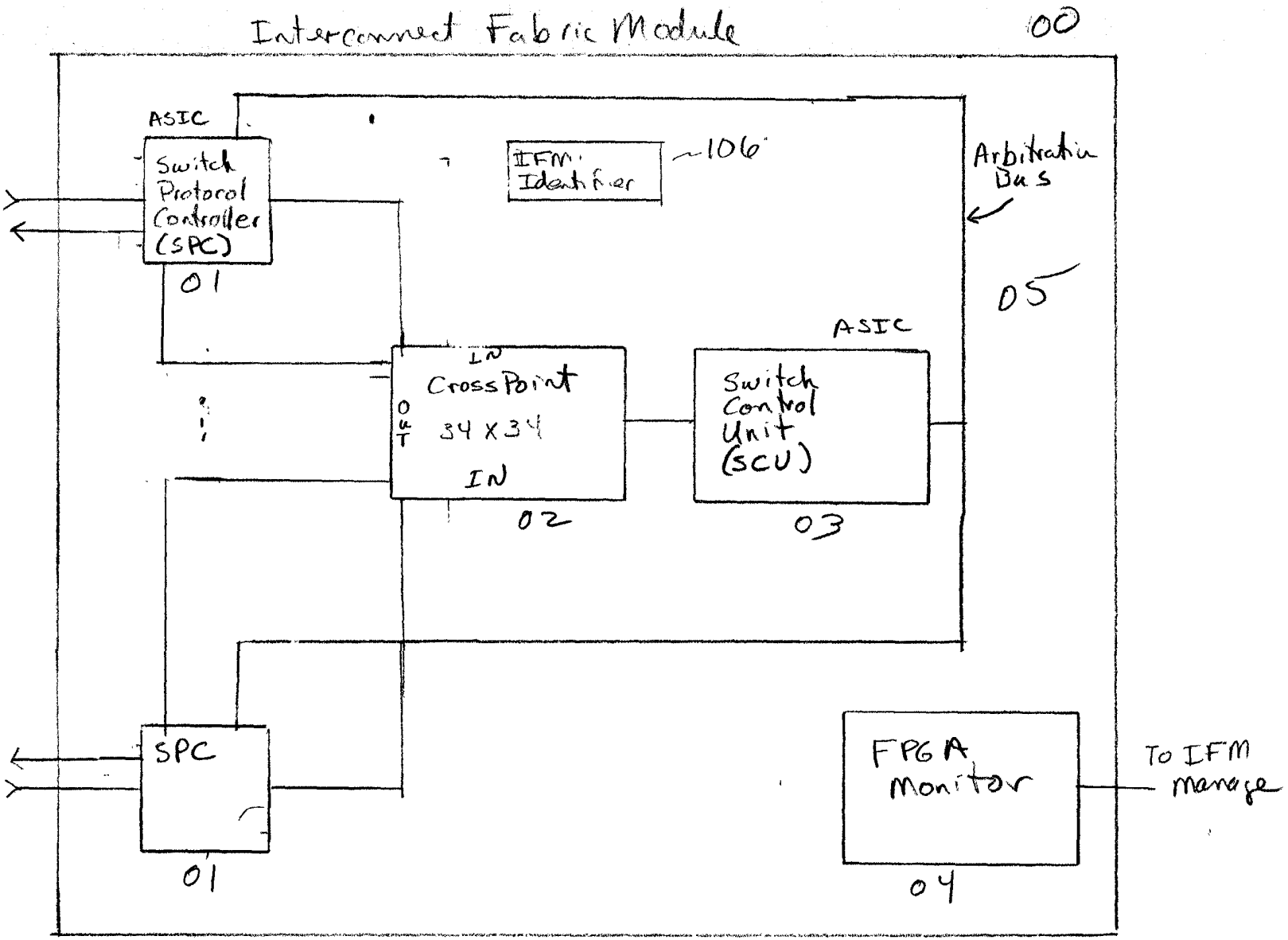


Fig 1

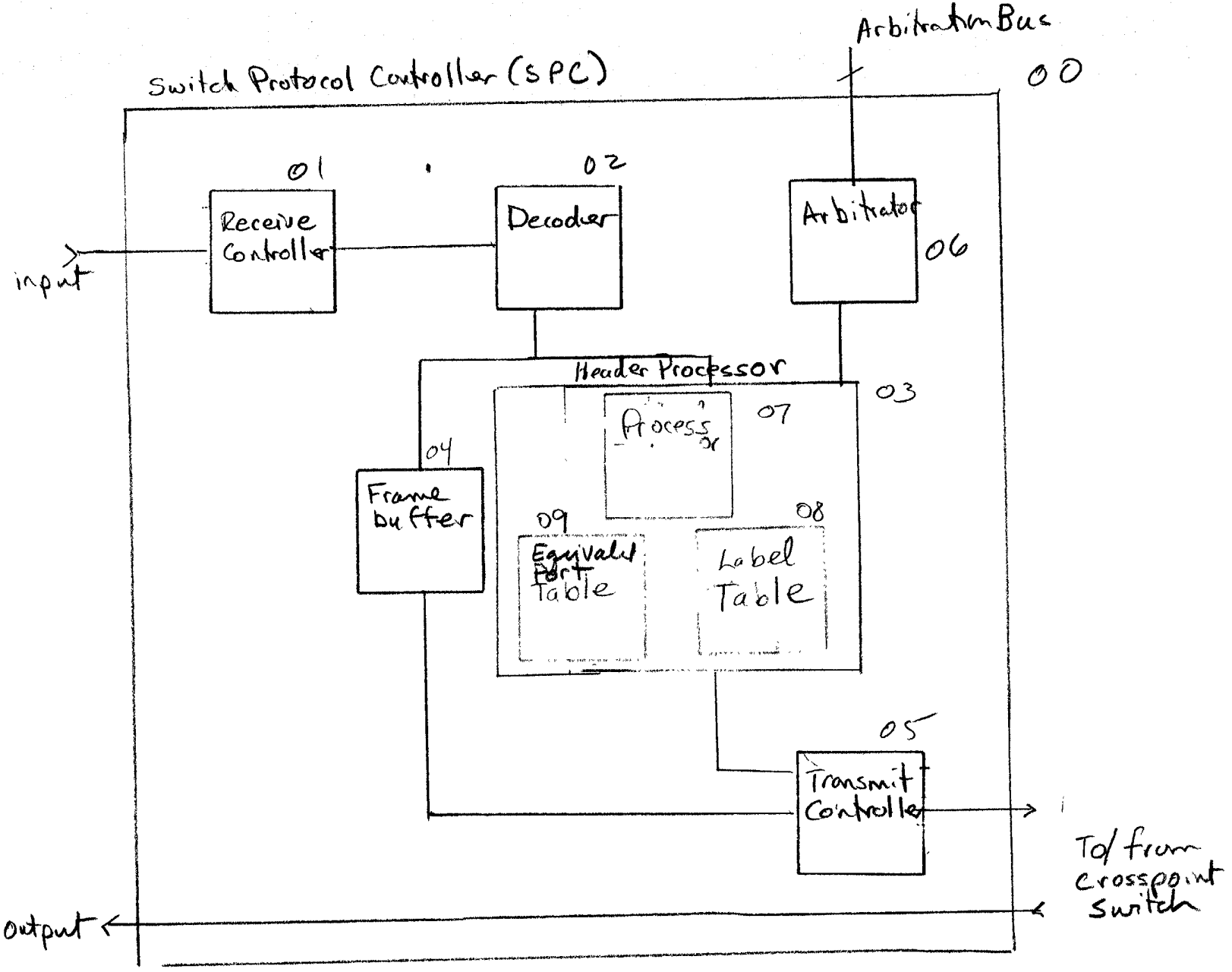

Arbitration Bus
Switch Protocol Controller (SPC)
00
01
02
Receive Controller
Decoder
Arbitrator
06
input
Header Processor
03
Processor
07
04
Frame buffer
09
08
Equivalent Port Table
Label Table
05
Transmit Controller
To/from crosspoint switch
output

Fig 2

T0920T "62E990T

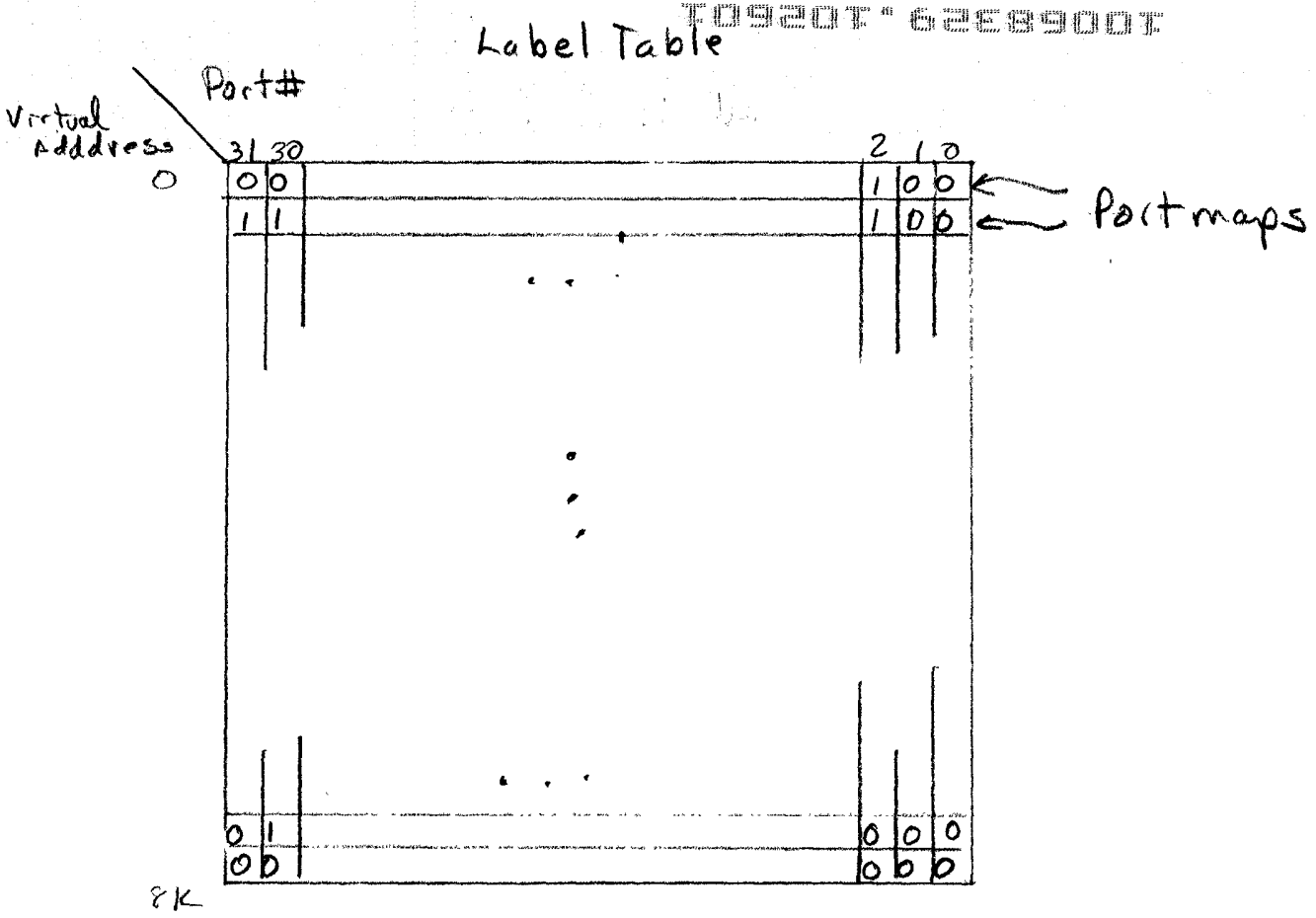


Fig 3

T0920T "62E890OT

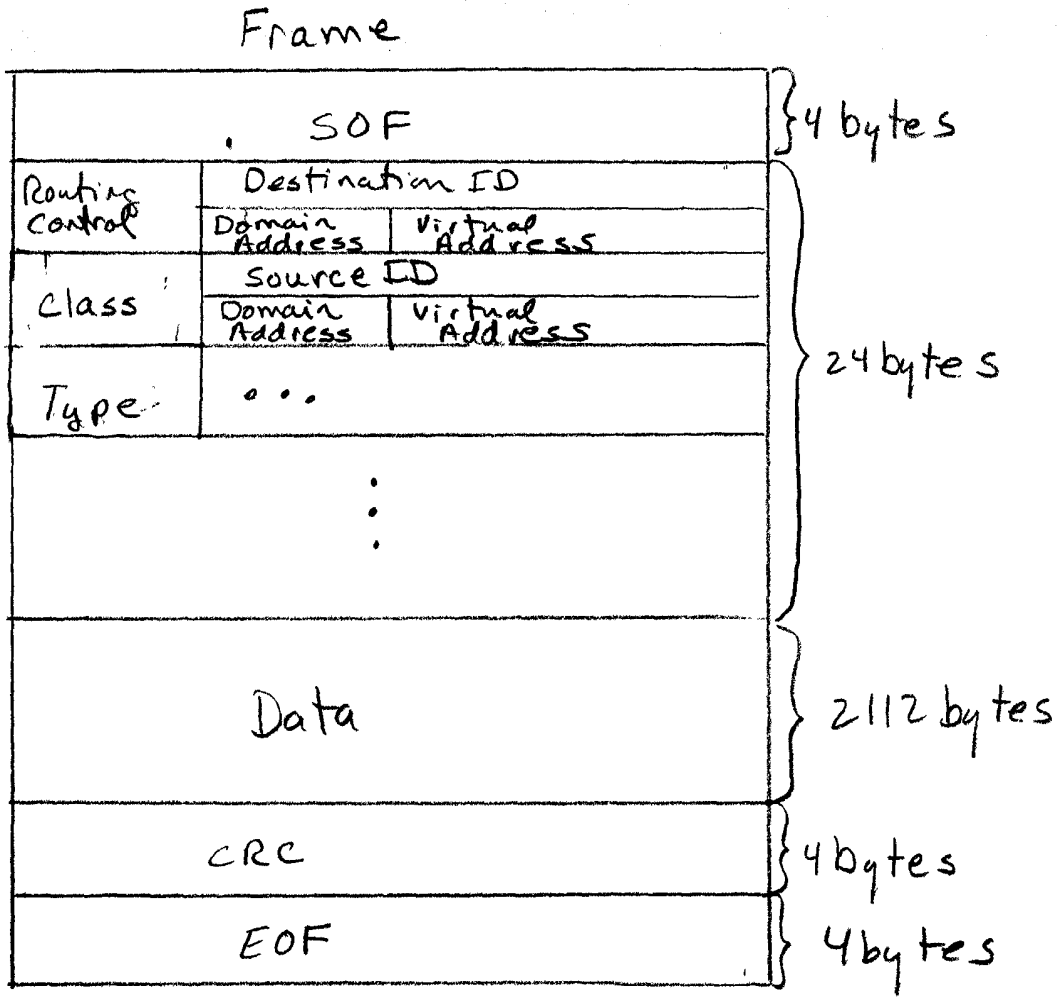


Fig 4

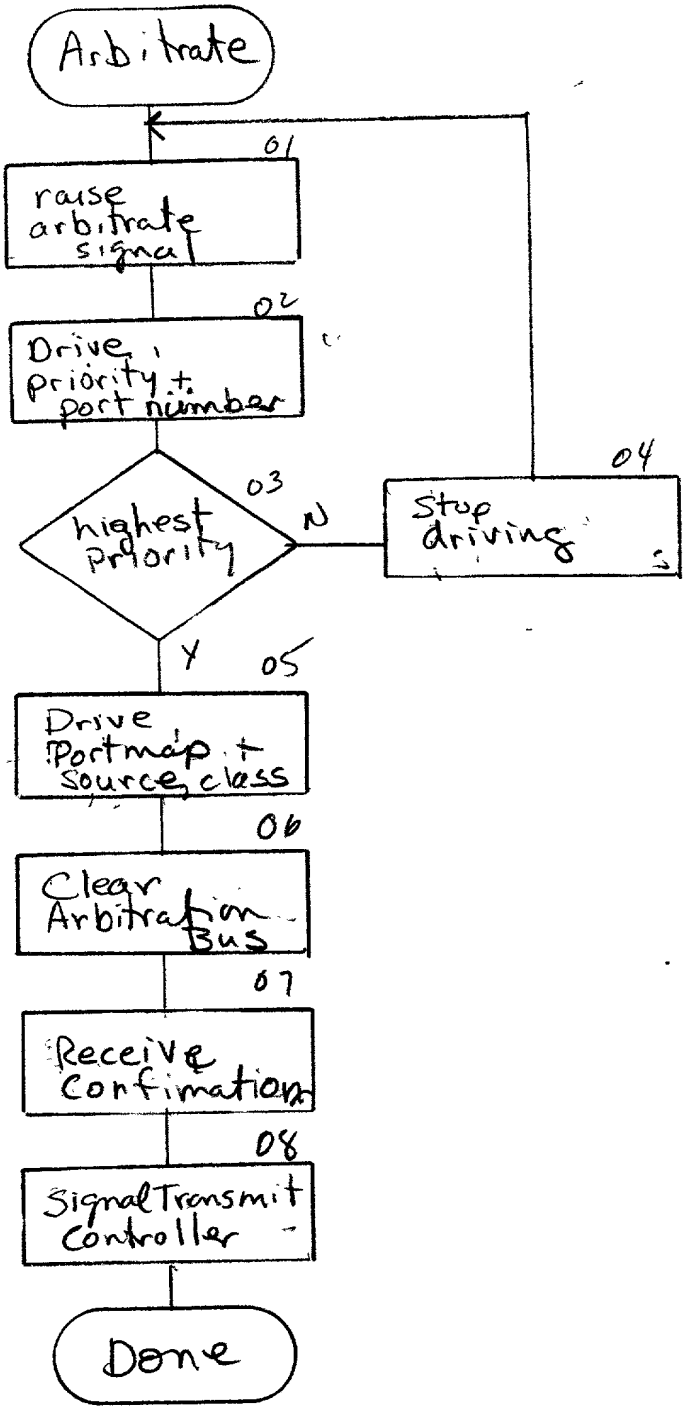

Arbitrate
01
raise arbitrate signal
02
Drive priority + port number
03
highest priority
N
04
Stop driving
Y
05
Drive Portmap + source class
06
Clear Arbitration Bus
07
Receive Confimation
08
Signal Transmit Controller
Done

Fig 5

T0920T" 62E890T

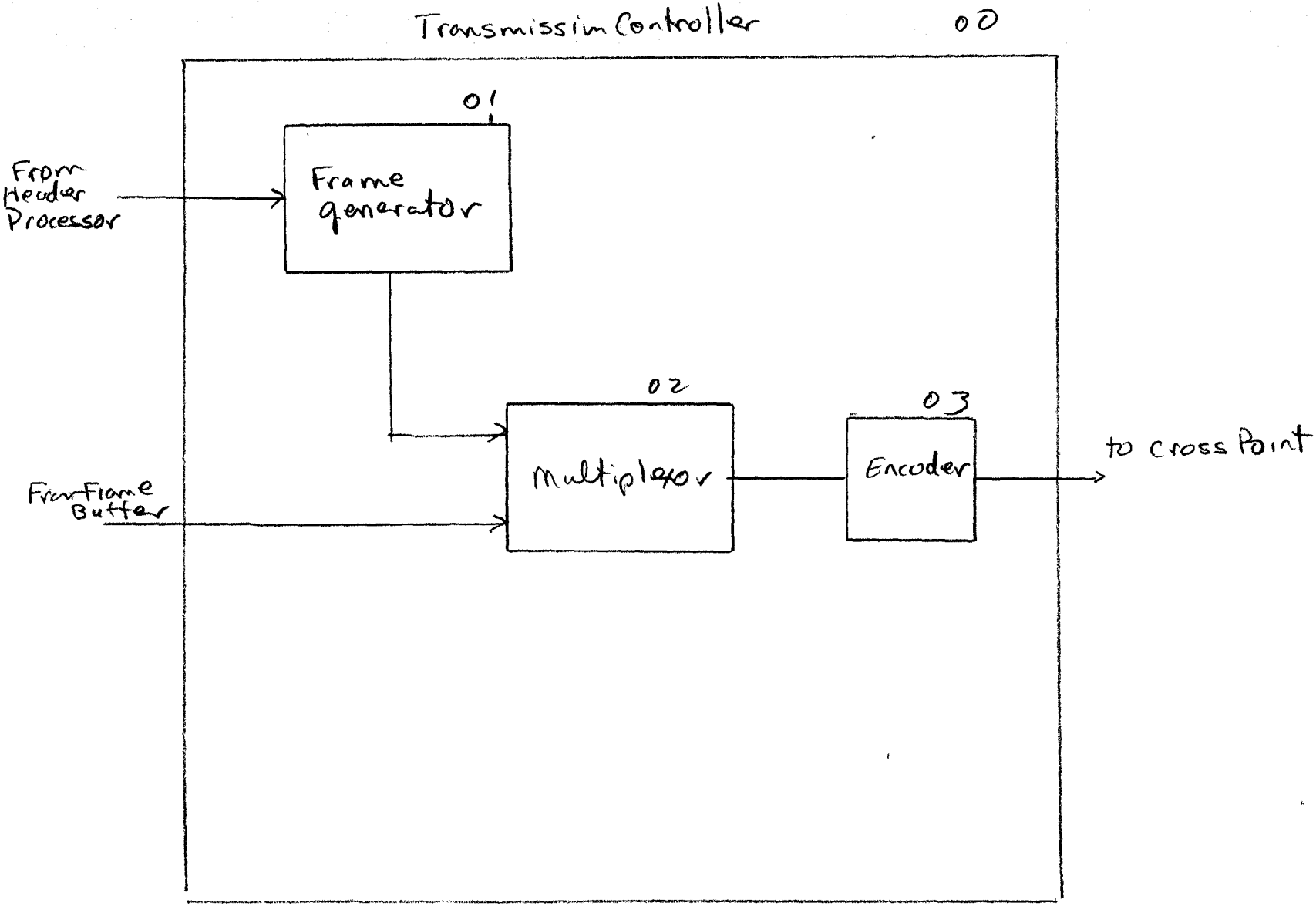


Fig 6

T0920T 6268900T

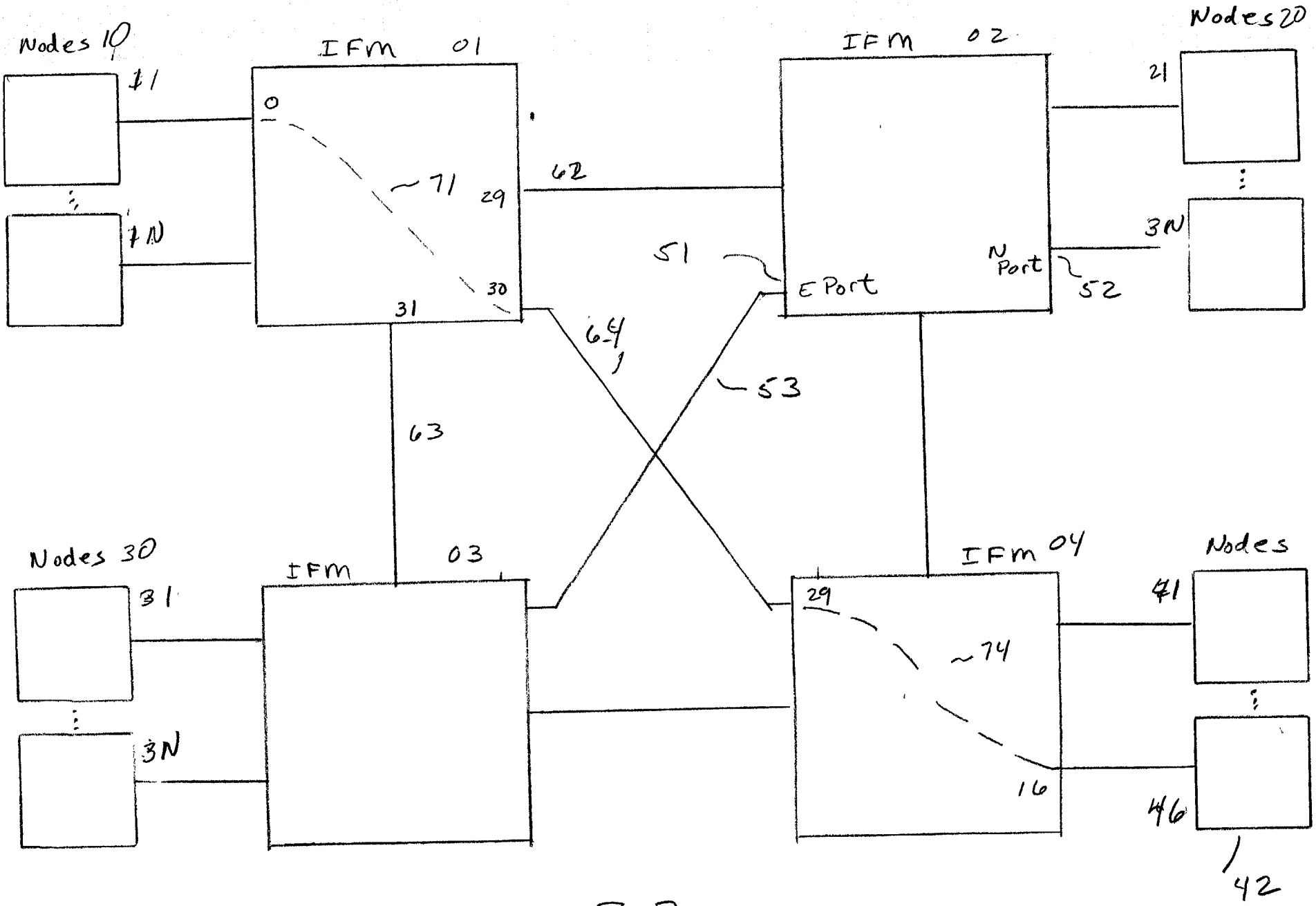


Fig 7

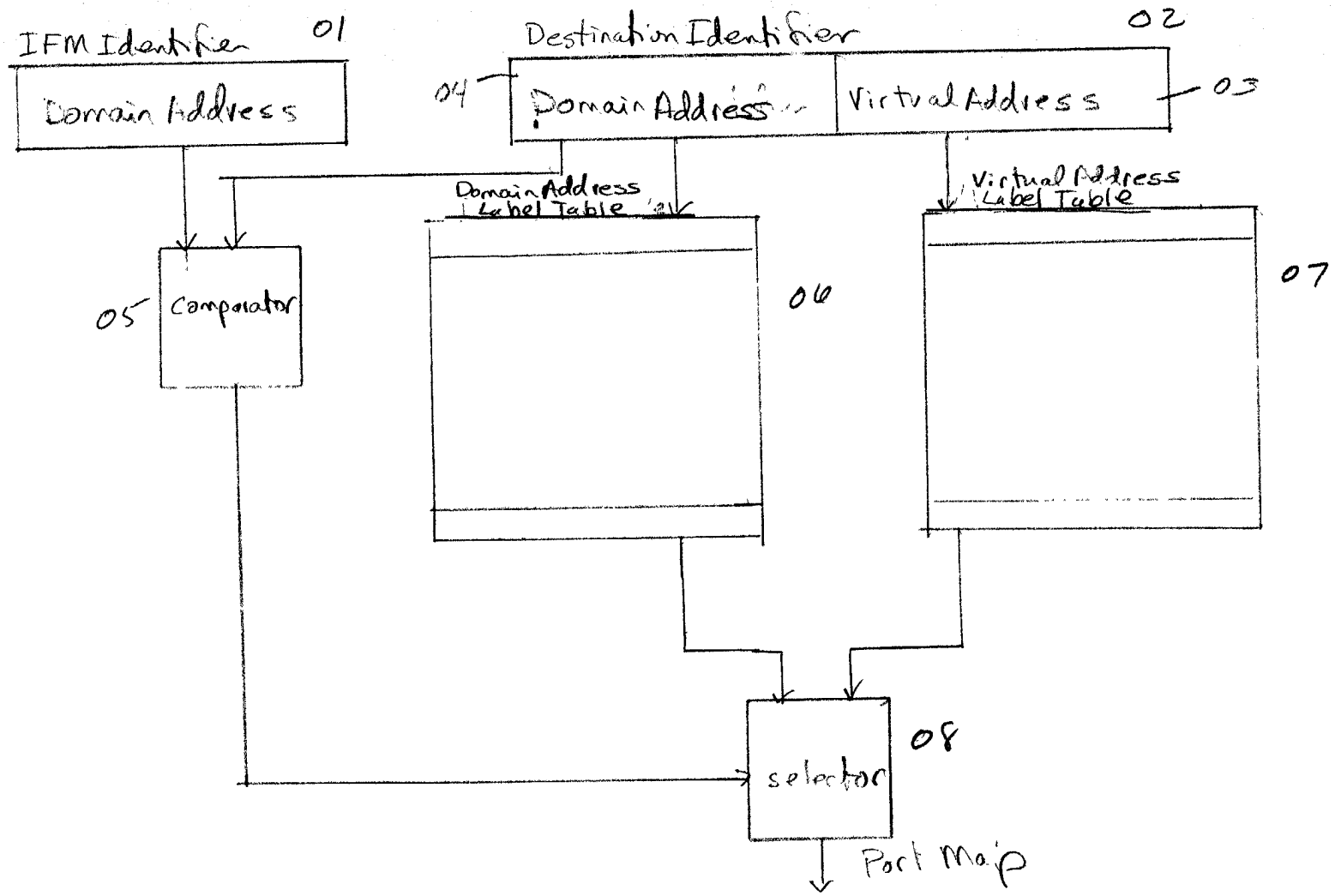

IFM Identifier
01
Domain Address
Destination Identifier
02
04
Domain Address
Virtual Address
03
Domain Address Label Table
Virtual Address Label Table
05
Comparator
06
07
08
selector
Port Map

Fig. 8

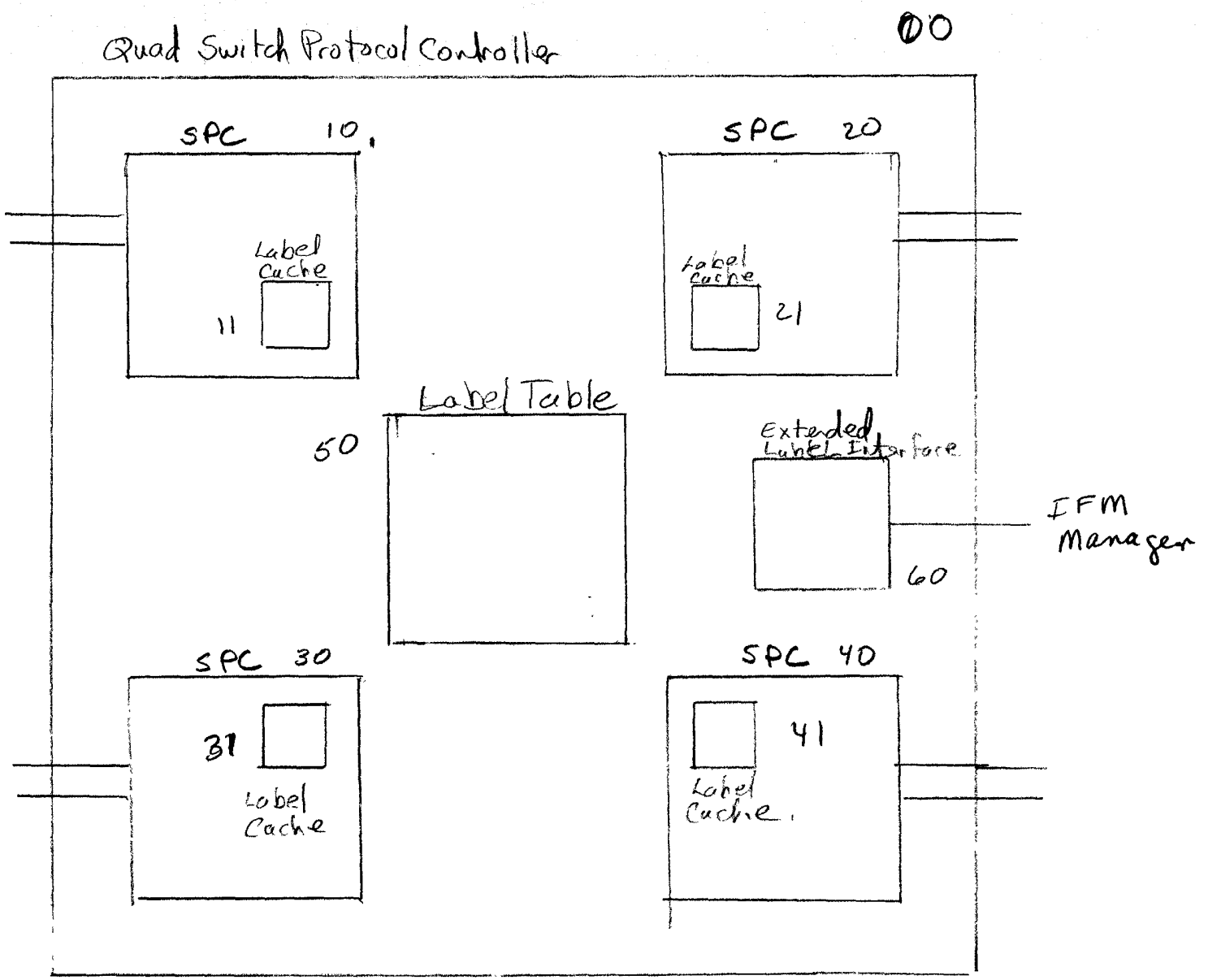

Quad Switch Protocol Controller
00
SPC 10
Label Cache
11
SPC 20
Label Cache
21
Label Table
50
Extended Label Interface
60
IFM Manager
SPC 30
31
Label Cache
SPC 40
41
Label Cache

Fig 9

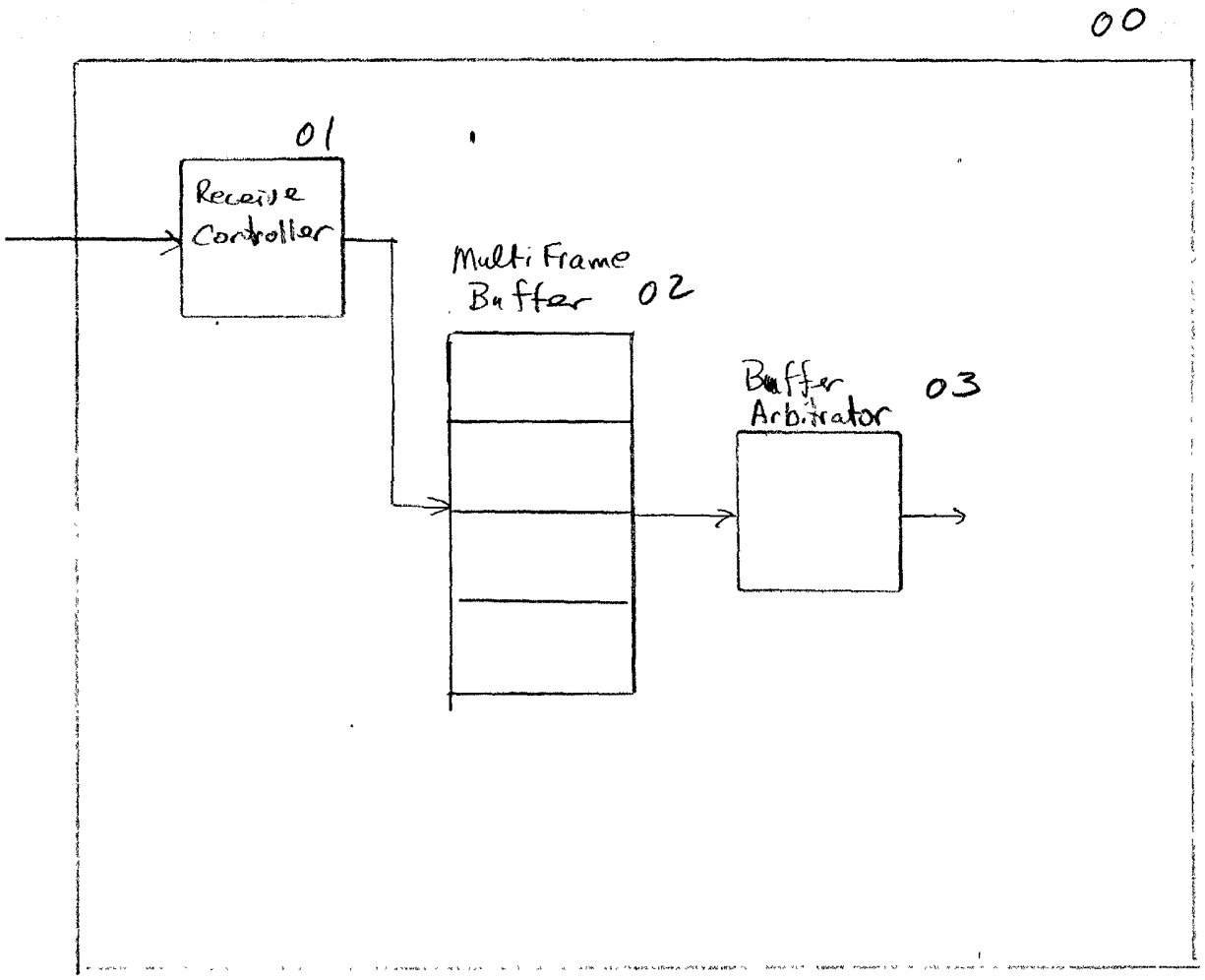

00
01
Receive Controller
Multi Frame Buffer 02
Buffer Arbitrator 03

Fig 10

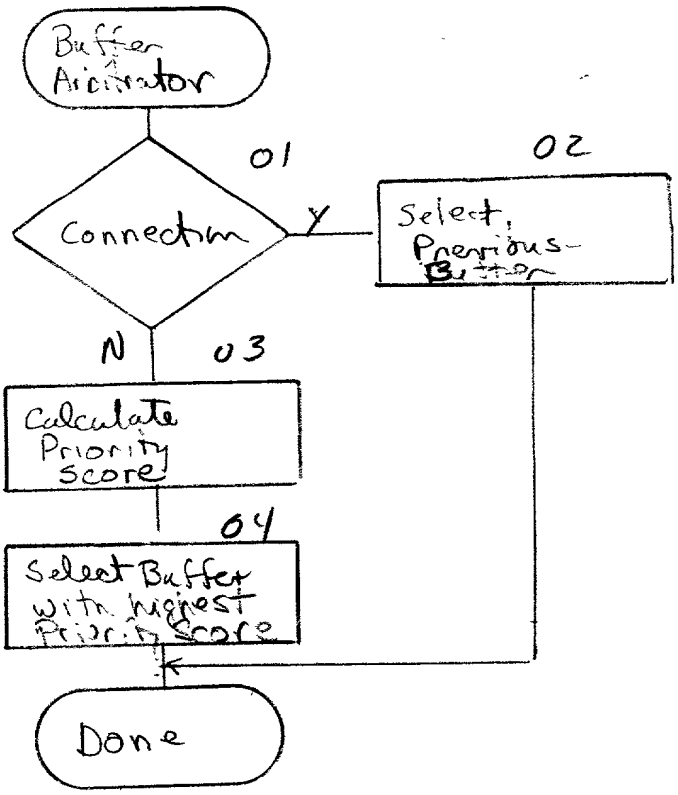


Fig 11

US006829254

T0920T "62E890DT

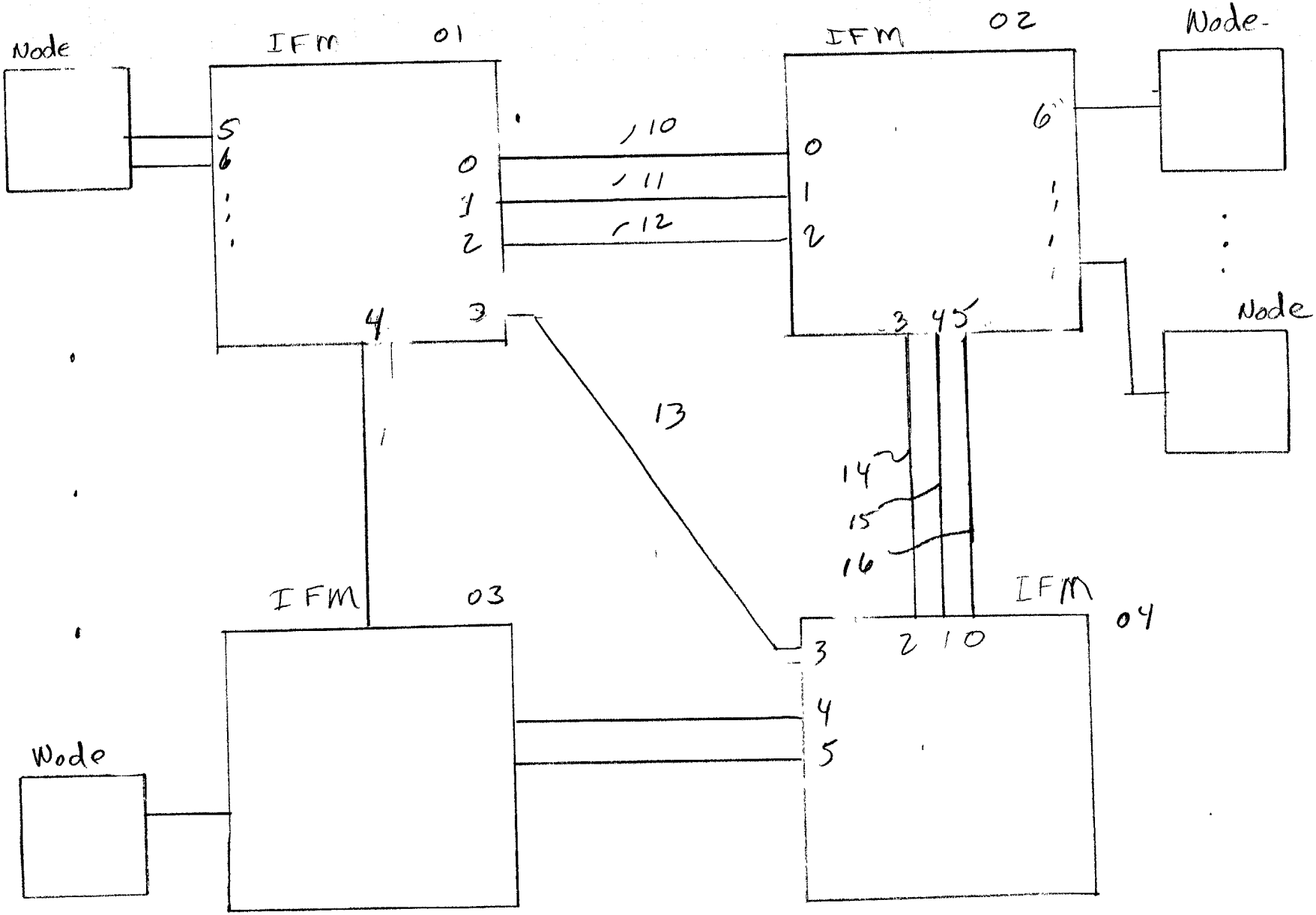


Fig 12

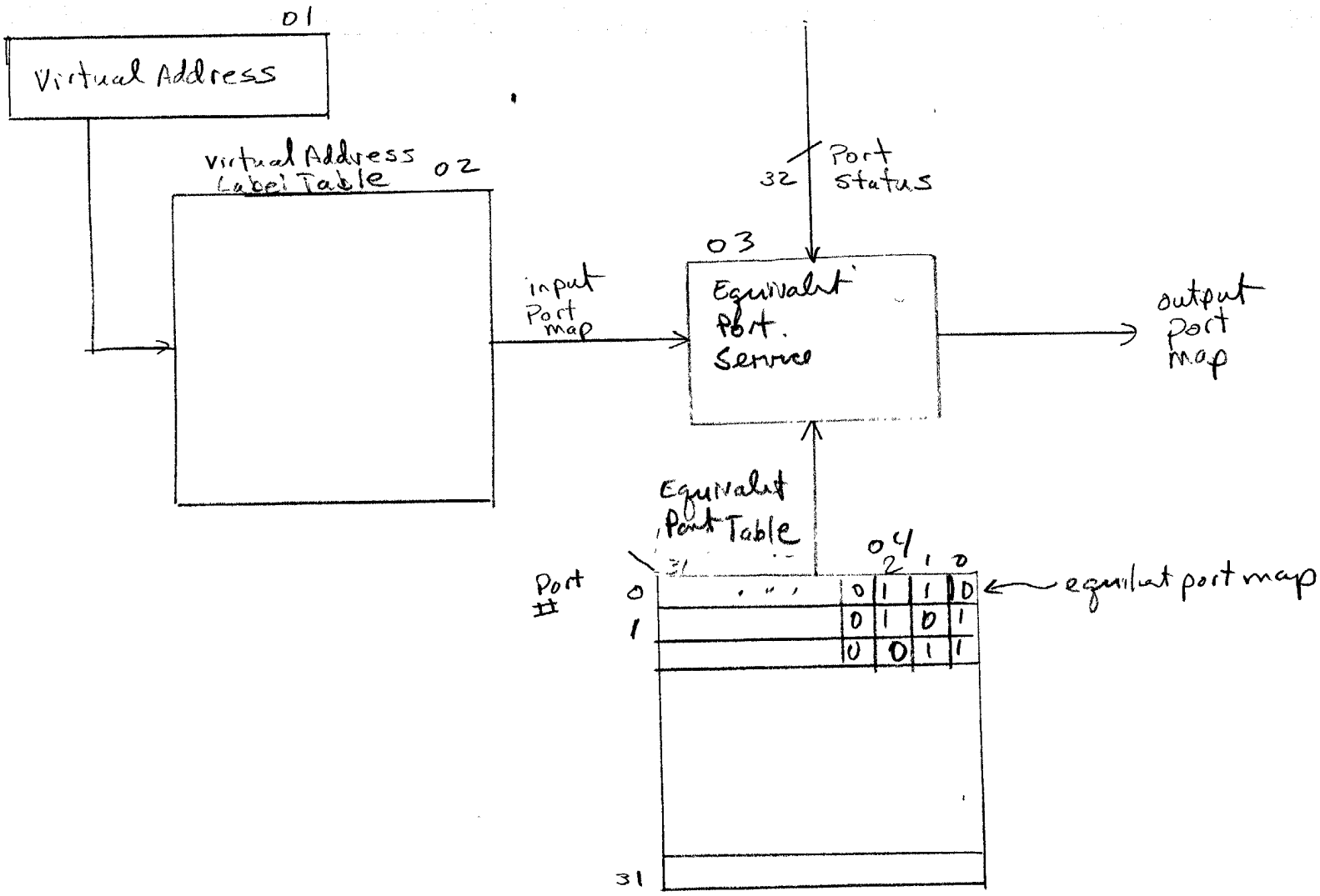

01
Virtual Address
Virtual Address Label Table
02
32
Port status
03
input Port map
Equivalnt Port. Service
output Port map
Equivalnt Port Table
04
Port #
0
1
31
equilat port map

Fig 13

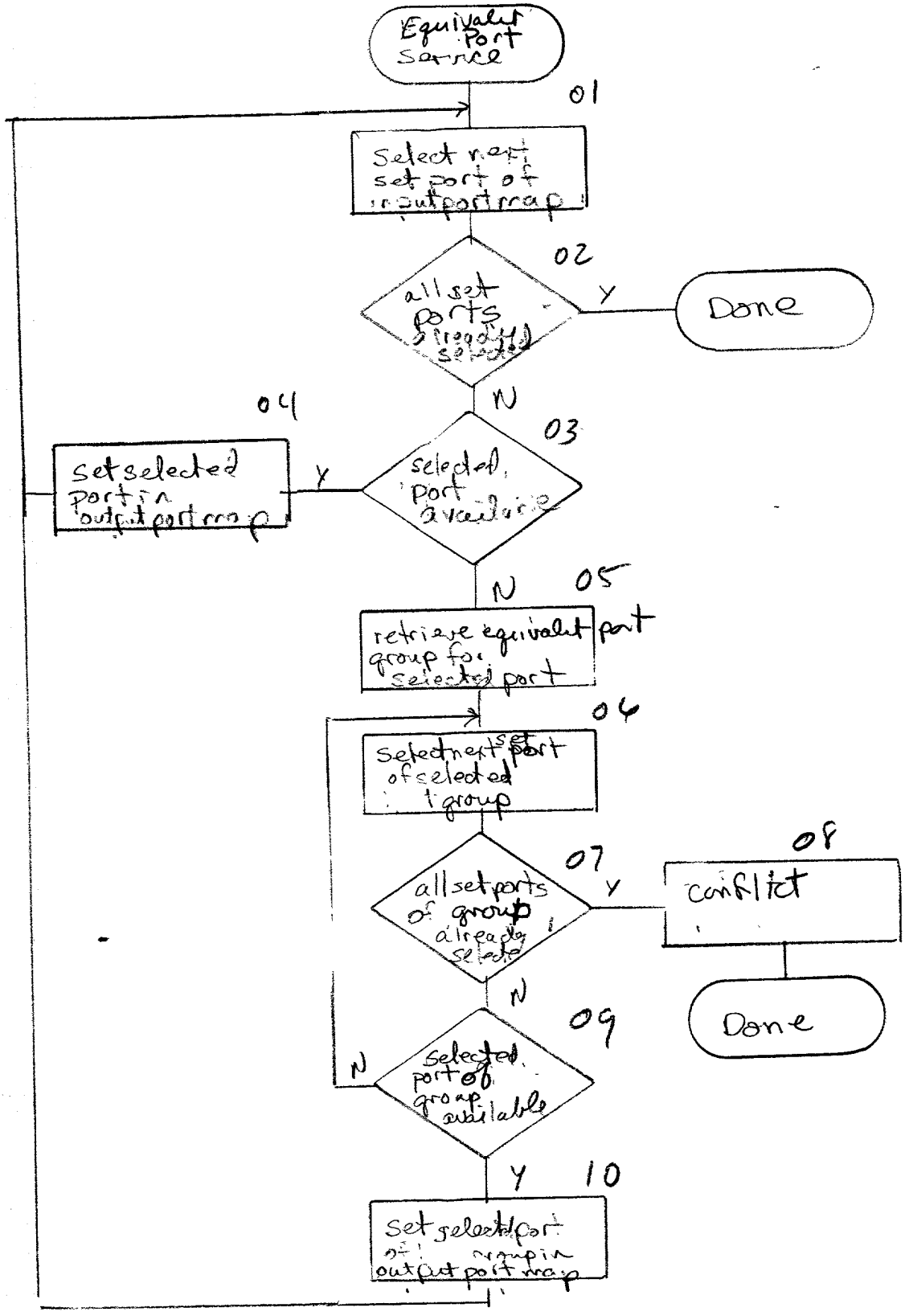

Equivalent Port Service
01
Select next set port of output port map
02
all set ports already selected
Y
Done
N
03
selected port available
N
04
Set selected port in output port map
Y
05
retrieve equivalent port group for selected port
06
Select next set port of selected group
07
all set ports of group already selected
Y
08
conflict
Done
N
09
Selected port of group available
N
Y
10
Set selected port of group in output port map

Fig 14

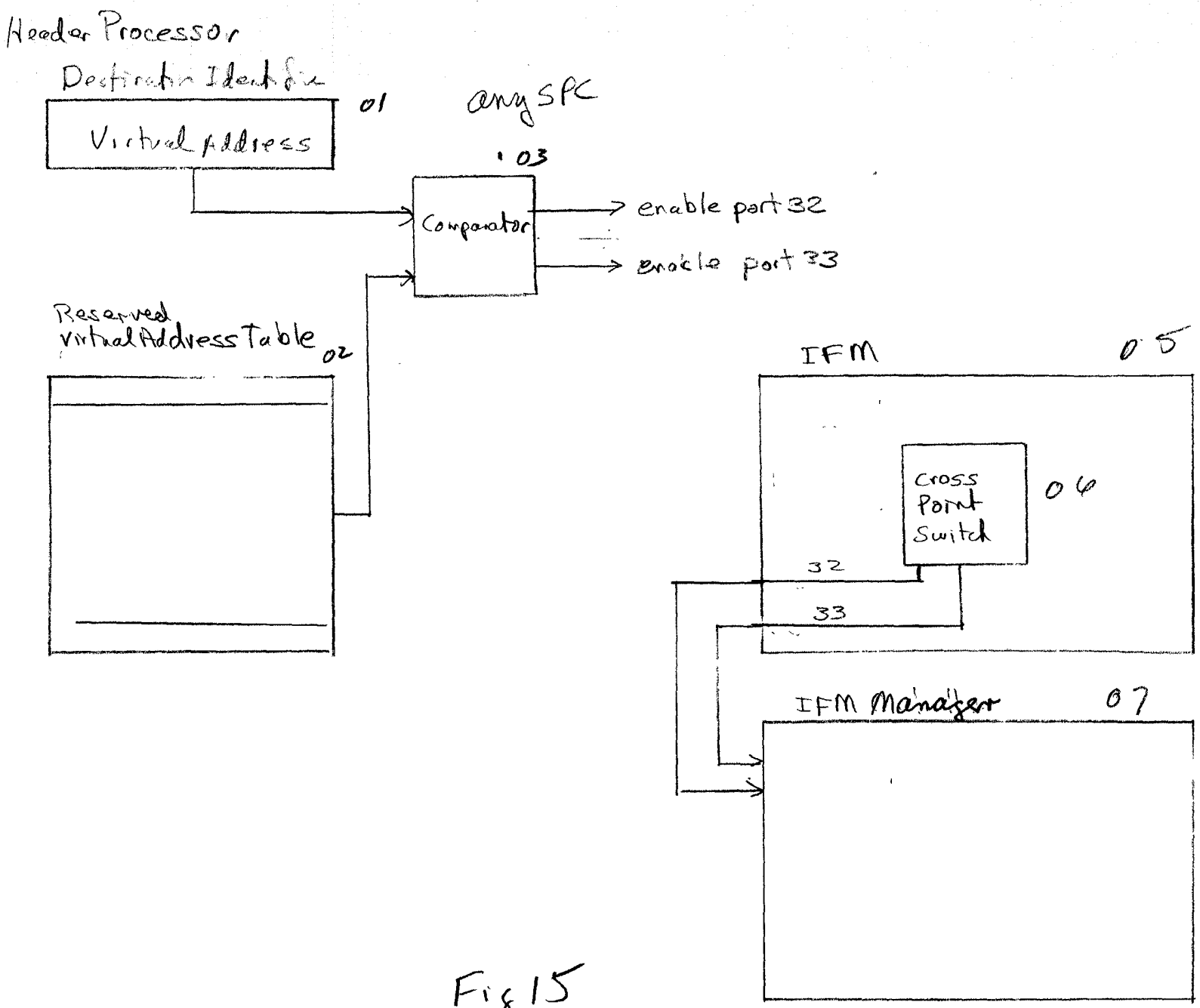
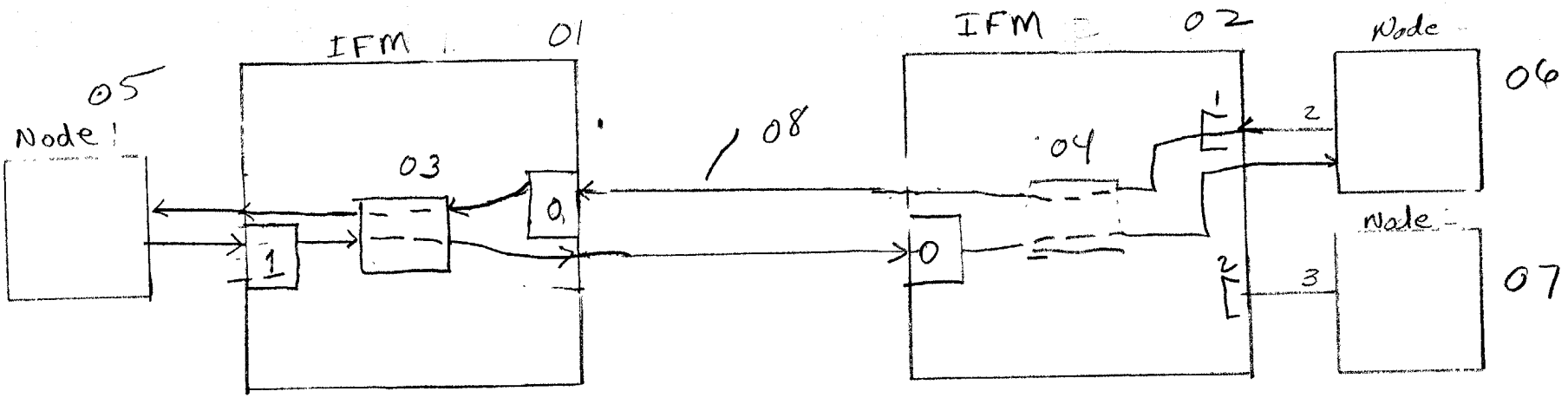

Header Processor
Destination Identifier
Virtual Address
01
any SPC
03
Comparator
enable port 32
enable port 33
Reserved virtual Address Table
02
IFM
05
Cross Point Switch
06
32
33
IFM Manager
07

Fig 15



Deadlock

10

Time	Node 1605 IFM 1601	Node 1606 IFM 1602
0	Send start connect	Send start connect
1	Connect 1 ↔ 0	Connect 2 ↔ 0
2	Forward start connect	Forward start connect
3	Can't forward start connect Node 1	Can't forward start connect

Fig 16

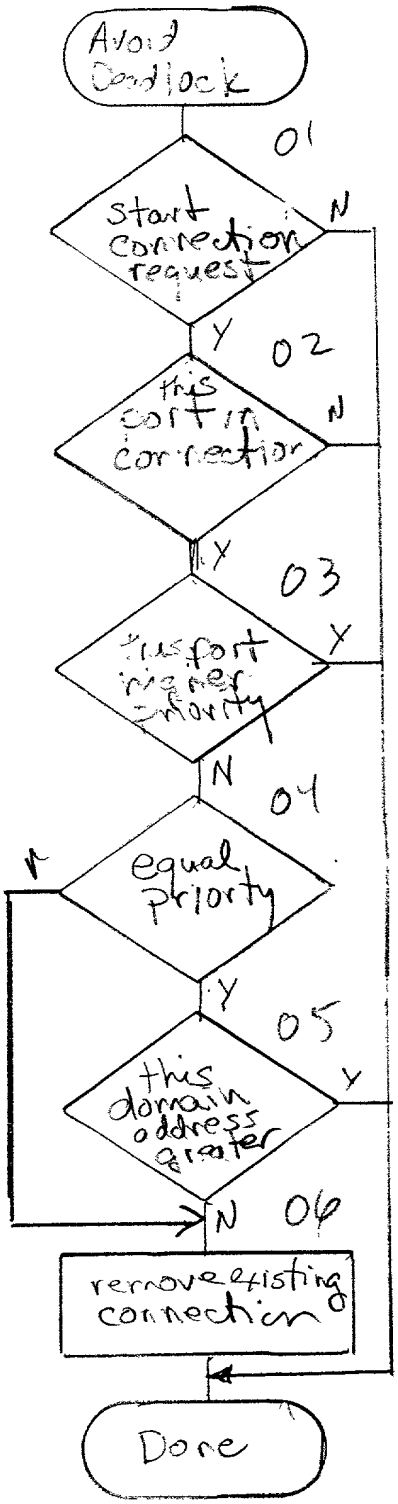

When end-to-end not established
Avoid Deadlock
01
Start connection request
N
Y
02
this conn in connection
N
Y
03
this conn higher priority
Y
N
04
equal priority
N
Y
05
this domain address greater
Y
N
06
remove existing connection
Done

Fig 17

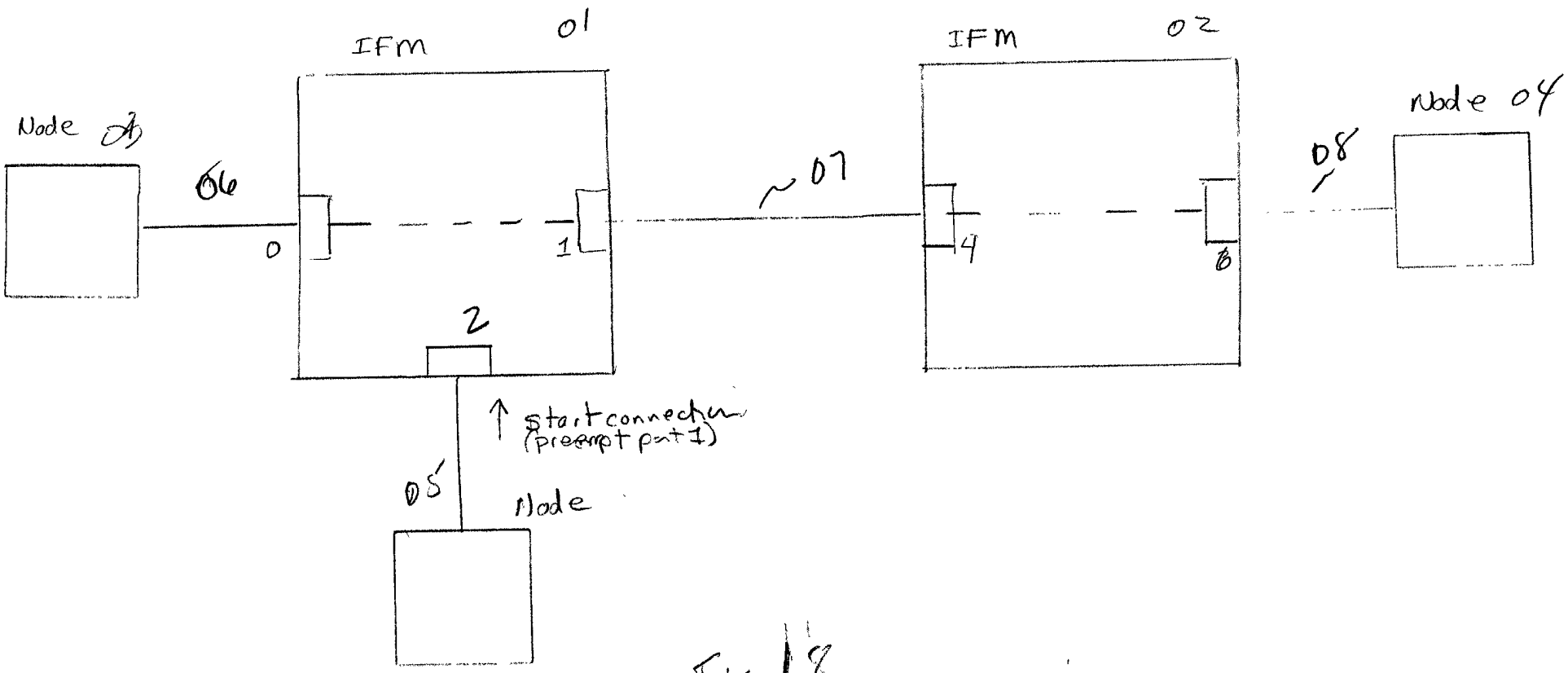
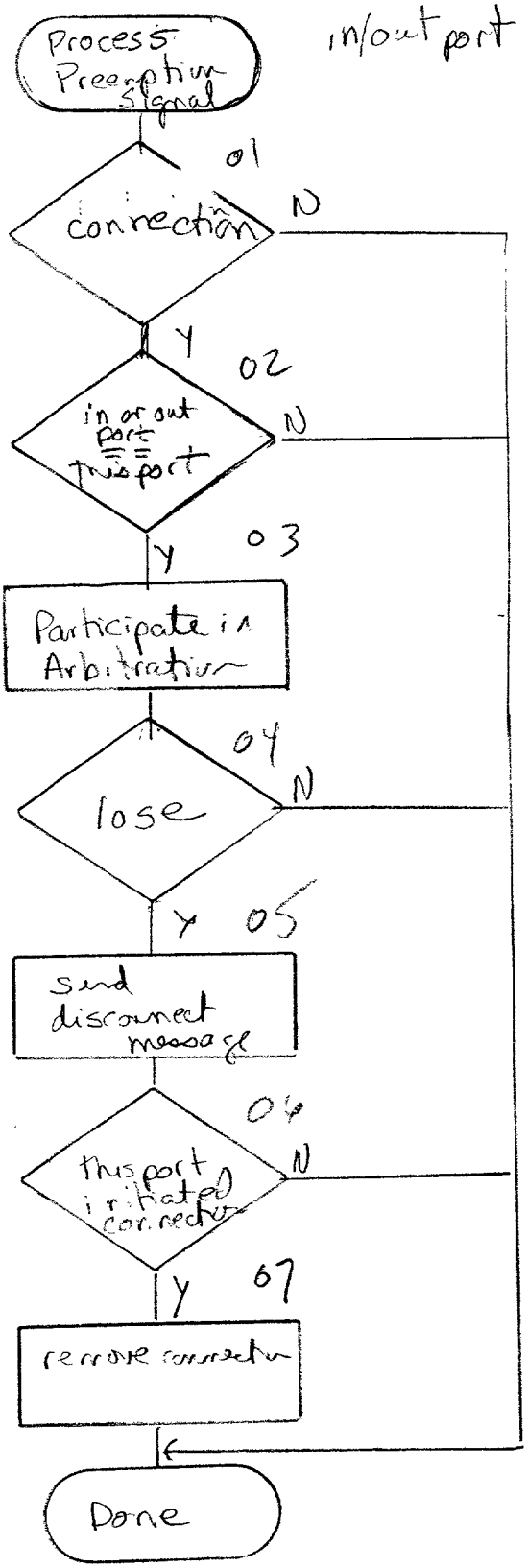

IFM
01
IFM
02
Node 03
Node 04
06
07
08
0
1
4
6
2
start connection
(preempt port 1)
05
Node

Fig 18


Process Preemption Signal
in/out port
01
connection
N
Y
02
in or out port == this port
N
Y
03
Participate in Arbitration
04
lose
N
Y
05
send disconnect message
06
this port initiated connection
N
Y
07
remove connection
Done

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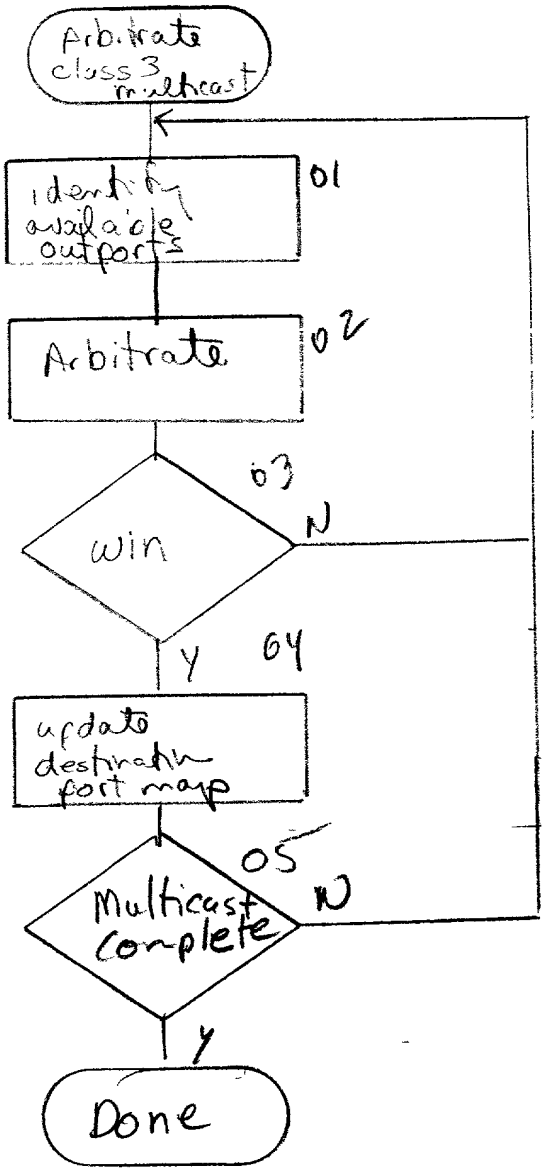

Figure 20